



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,426	12/15/2003	David Bebbington	VPI/00-130-06 CON US	3948

27916 7590 07/12/2005

VERTEX PHARMACEUTICALS INC.
130 WAVERLY STREET
CAMBRIDGE, MA 02139-4242

EXAMINER

HABTE, KAHSAI

ART UNIT PAPER NUMBER

1624

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,426

Applicant(s)

BEBBINGTON ET AL.

Examiner

Kahsay Habte, Ph. D.

Art Unit

1624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15, 16, 18, 19, 22 and 26-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13, 15, 16, 22 and 26-29 is/are allowed.
- 6) ☒ Claim(s) 18 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-13, 15-16, 18-19, 22 and 26-29 are pending.

Response to Amendment

2. Applicant's amendment filed 06/03/2005 in response to the previous Office Action (10/07/2004) is acknowledged. Rejections of claims 1-16 under 35 U.S.C. § 112, first and second paragraph (paragraphs 2, 4 and 5a-5b) have been obviated. The rejection of claims 18-19 (paragraph 3) under 35 U.S.C. § 112, first paragraph has been maintained.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 18-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In claim 18, there has been recited a method of treating cancer in general but the specification is not enabled for such a scope.

Art Unit: 1624

The claim sets forth the treatment of cancer generally. However, there never has been a compound capable of treating cancer generally. There are compounds that treat a range of cancers, but no one has ever been able to figure out how to get a compound to be effective against cancer generally, or even a majority of cancers. Thus, the existence of such a "silver bullet" is contrary to our present understanding in oncology. Even the most broadly effective antitumor agents are only effective against a small fraction of the vast number of different cancers known. This is true in part because cancers arise from a wide variety of sources, such as viruses (e.g. EBV, HHV-8, and HTLV-1), exposure to chemicals such as tobacco tars, genetic disorders, ionizing radiation, and a wide variety of failures of the body's cell growth regulatory mechanisms. Different types of cancers affect different organs and have different methods of growth and harm to the body, and different vulnerabilities. Thus, it is beyond the skill of oncologists today to get an agent to be effective against cancers generally, evidence that the level of skill in this art is low relative to the difficulty of such a task.

The enablement rejection in claim 18 also applies to claim 19, because the treatment of cancer selected from melanoma, lymphoma, neuroblastoma, leukemia, colon, breast, kidney, ovary, pancreatic, renal, CNS, cervical, prostate, or gastric tract are also broad and hard to treat diseases. For example, CNS cancer would cover all cancers of the central nervous system. There are some types of central nervous system tumors that are more common than others. The most common kind of brain tumor is called astrocytoma. It is a tumor that grows in cells in the brain called astrocytes. Other kinds of brain tumors are medulloblastomas, pineoblastomas,

Art Unit: 1624

oligodendrogliomas, ependymomas, tumors of neurons and gangliogliomas. There are different kinds of spinal cord tumors e.g. chordoma and meningioma.

Leukemia is kind of cancer that starts in the bone marrow also covers a wide range of cancers. There are different kinds of leukemia. There are kinds that grow fast and kinds that grow very slow e.g. Acute Lymphoblastic Leukemia, Acute Myelogenous Leukemia or AML. A kind of leukemia that grows slow is called Chronic Myelogenous Leukemia or CML.

Note that cancers of gastric tract would cover all cancers of the body the gastrointestinal tract (e.g. mouth, throat, esophagus, stomach, colon, anus, etc.). For example, pharynx cancer is a type of cancer that starts in the throat. Another examples are gastric cancer that starts in the stomach and colon cancers that starts in the intestines. Since the cancers recited in claim 19 are very broad and are different one from the other, the enablement rejection is proper.

When the best efforts have failed to achieve a goal, it is reasonable for the PTO to require evidence that such a goal has been accomplished, *In re Ferens*, 163 USPQ 609. The failure of skilled scientists to achieve a goal is substantial evidence that achieving such a goal is beyond the skill of practitioners in that art, *Genentech vs Novo Nordisk*, 42 USPQ2nd 1001, 1006.

Response to arguments

Art Unit: 1624

Applicant's argument filed 06/03/2005 has been fully considered but it is not persuasive.

Applicants argue, "As would be recognized by skilled practitioners, some compounds may not be capable of treating cancer generally because of their mechanism of action. If a compound's mechanism of action is specific for certain type of cancer, then the compound would not be useful for treating cancer generally. However, if a compound's mechanism of action is general for all cell types, then the compound could be used to treat cancer generally.

Applicants' compounds act by mechanism that is not specific to a certain type of cancer (see, e.g., the specification at page 2, line 24 to page 3, line 3). Applicants' compounds inhibit (among others kinases) Aurora-2 kinase. Aurora-2 kinases are involved in fundamental process in cell division.....Applicants' compounds, by inhibiting Aurora-2, would inhibit cell division in all types of cells. Therefore, applicants' compounds could be used to treat cancer and, more specifically, the types of cancers recited in claim 19". The examiner disagrees with applicants. Note that claims 18-19 are not drawn to cancers that need inhibition of Aurora-2 kinase, thus, the argument above is irrelevant. According to page (lines 24-29), it is disclosed that Aurora-2 is a serine/threonine protein kinase that has been implicated in human cancer...Aurora-2 may play a role in controlling the accurate segregation of chromosomes during mitosis. The phrases "has been implicated" and "may play a role" indicate that the treatment of cancers by the inhibition of Aurora-2 requires further studies. "May" means that it may,

Art Unit: 1624

or it may not. It is not an affirmative statement, it just raise the possibility. "Implicated" does not require causality.

According to page 313 (BIOLOGICAL TESTING EXAMPLE 2), a Ki determination for the inhibition of Aurora-2 was carried out. The Ki values for the compounds vary significantly. Some compounds were shown to have Ki values less than 0.1 μM . Other compounds reported to have Ki values between 0.1 – 10 μM . Note that there is no way to translate this data into useful meaning. There is no linkage between the inhibition of Aurora-2 and the treatment of cancer in general or specific cancers recited in claim 19. There is no *in vivo* data or dosage information.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Conclusion

Art Unit: 1624

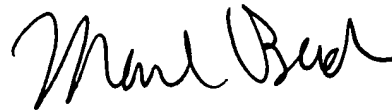
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kahsay Habte, Ph. D. whose telephone number is (571) 272-0667. The examiner can normally be reached on M-F (9.00AM- 5:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mukund Shah can be reached on (571) 272-0674, if there is no reply within 24 hours, James Wilson (Acting SPE) can be reached at (571) 272-0661. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kahsay Habte, Ph. D.
Examiner
Art Unit 1624



Mark L. Berch
Primary Examiner
Art Unit 1624

KH
July 6, 2005